SAFETY DATA SHEET

TEDIA®
High Purity Solvents

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DIETHYLENE GLYCOL — SDS No. M0065

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: Diethylene Glycol
Synonyms: 2,2'-Oxydiethanol; 2,2'-Oxybisethanol; 2,2' Dihydroxydiethyl Ether; CELLOSOLVE(R); Glycol Ether; Glycolethyl Ether
Recommended Use: This product is recommended for laboratory and manufacturing use only. It is not recommended for drug, food or household use.

2. HAZARDS IDENTIFICATION

Classification:
Acute Toxicity, Oral: GHS Category 4
Skin Irritation: GHS Category 3
Eye Irritation: GHS Category 2B

Label Elements
Signal Word: WARNING!
Hazard Statements:
H302 – Harmful if swallowed.
H316 – Causes mild skin irritation.
H320 – Causes eye irritation.
Precautionary Statements:
P281 – Use personal protective equipment as required.
P303+P361+P353 – If on skin or hair: Remove/take off immediately all contaminated clothing. Rinse skin with water/shower.

Emergency Overview
Harmful if swallowed. May cause irritation to skin and eyes. Target Organs: Liver, kidneys, skin, and eyes.

HMIS Rating:
Health – 2* Flammability – 1 Physical Hazard – 0 PPE – User supplied
NOTE: HMIS ratings use a numbering scale that ranges from 0 - 4 to indicate the degree of hazard. A value of zero means the chemical presents no hazard while a value of four indicates a high hazard. These ratings are based on the inherent properties of this chemical

under expected conditions of normal use and are not intended to be used in emergency situations. PPE is determined by the user based on their needs and conditions.

3. COMPOSITION AND INFORMATION ON INGREDIENTS

Ingredient	CAS No	Percent	Hazardous
Diethylene Glycol	111-46-6	>99%	Yes

4. FIRST-AID MEASURES

Inhalation: Remove to fresh air. Not expected to require first aid measures..
Ingestion: Induce vomiting. Never give anything by mouth to an unconscious person. Get medical aid.
Skin Contact: Remove any contaminated clothing. Wash skin with soap or mild detergent and water for at least 15 minutes. Get medical attention if irritation develops and persists.
Eye Contact: Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention.
Notes to Physician: Treat symptomatically and supportively.

5. FIRE FIGHTING MEASURES

Flammability: Not expected to be a fire hazard.
Auto-ignition Temperature: 229° C (444° F)
Flash Point: 124° C (255° F)
Flammable Limits: Lower Limit – 1.6 vol %, Upper Limit – 10.8 vol %
Products of Combustion: May decompose into irritating and highly toxic gases under fire conditions (carbon monoxide, carbon dioxide).
Specific Fire Hazards: Fire is possible at elevated temperatures or if contacted by an ignition source. As in any fire, always wear self-contained breathing apparatus in pressure-demand (MSA/NIOSH approved or equivalent), and full protective gear. Use water spray to keep fire exposed containers cool. Approach fire from upwind to avoid hazardous vapors and toxic decomposition products.
Specific Explosion Hazards: No information available.
Fire Fighting Media: Use water, dry chemical, chemical foam, or alcohol-resistant foam. Water or foam may cause frothing. Use agent most appropriate to extinguish fire.
National Fire Protective Association: Health - 1, Flammability - 1, Reactivity - 0
NOTE: NFPA ratings use a numbering scale that ranges from 0 - 4 to indicate the degree of hazard. A value of zero means the chemical presents no hazard while a value of four indicates a high hazard. They are for use by emergency personnel to address the hazards that are presented by short term, acute exposure to this product under fire, spill, or similar emergencies. Ratings involve data and interpretations that may vary from company to company.

6. ACCIDENTAL RELEASE MEASURES

Absorb spilled liquid with sorbent pads, socks, or other inert material such as vermiculite, sand, or earth. Use spark-proof tools. Provide ventilation to the affected area and remove all ignition sources. Approach the spill from upwind and pick up absorbed material and place it in a suitable container. Always use proper personal protective equipment as described in section 8.

7. HANDLING AND STORAGE

Precautions: Always use proper personal protective equipment as described in section 8. Wash thoroughly after handling. Avoid contact with eyes, skin, and clothing. Remove contaminated clothing and wash before reuse. Ground or bond containers before transferring material. Empty containers contain product residue (liquid and vapor) and can be dangerous. Use with adequate ventilation. Avoid breathing vapor or mist.
Storage: Store away from ignition sources. Keep in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls: Use explosion-proof ventilation equipment. Facilities storing or using the material should be equipped with eyewash station and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.
Personal Protection: Wear chemical splash goggles or other appropriate eye protection. Use butyl rubber gloves and protective clothing to prevent skin exposure. A respiratory protection program that meets OSHA 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever possible. Always use a NIOSH or European Standard EN 149 approved respirator when necessary.
Exposure Limits:
AIHA Workplace Environmental Exposure Level (WEEL): TWA = 10mg/m3.
ACGIH – None
NIOSH – None
OSHA Final PELs – None

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State and Appearance: Clear, colorless liquid.
Odor: Odorless
Molecular Formula: $O(HOCH_2CH_2)_2$
Molecular Weight: 106.12
Auto-ignition Temperature: 229° C (444° F)
Flash Point: 124° C (255° F)
Flammable Limits: Lower Limit – 1.6 vol %, Upper Limit – 10.8 vol %
pH: Not available
Boiling Point: 244-245° C @ 760 mm Hg
Freezing/Melting Point: -6.5° C
Decomposition Temperature: Not available.
Specific Gravity: 1.118 g/cm^3
Vapor Density (Air=1): 3.66
Vapor Pressure: 1 mm Hg @ 91.8° C.
Evaporation Rate (Butyl acetate = 1): Not available.
Viscosity: Not available.
Solubility: Infinitely soluble
Conductivity: Conductive; Conductivity = 5.86×10^7 pS/m; Dielectric Constant = 31.69; Relaxation Time Constant = 4.8×10^{-6} seconds

10. STABILITY AND REACTIVITY

Stability: Stable under normal handling and storage conditions.
Conditions to Avoid: Incompatibles.
Incompatibility With Various Substances: Strong oxidizers, strong acids, strong bases.
Hazardous Decomposition Products: Carbon monoxide, carbon dioxide.
Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

Routes of Entry: Inhalation, skin absorption, skin contact
Acute Exposure Hazards:
INHALATION HAZARD: Low inhalation hazard unless heated because of low vapor pressure.
INGESTION HAZARD: Low acute toxicity. Probable lethal dose to humans is 0.5-5 g/kg. Causes nerve depression, liver and kidney lesions and anuria (urination retardation). Causes irritation to the gastrointestinal tract. Symptoms may

include nausea, vomiting and diarrhea.
SKIN CONTACT HAZARD: May be an irritant to skin on prolonged exposure.
EYE CONTACT HAZARD: May be an irritant to eyes and surrounding tissue.
Chronic Exposure Hazards: Liver and kidney lesions and damage. Persons with pre-existing skin disorders or eye problems or impaired liver or kidney function may be more susceptible to the effects of the substance.
Animal Toxicity:
Draize test, rabbit eye: 50 mg, mild;
Oral, rat: LD50 = 12565 mg/kg;
Skin, rabbit: LD50 = 11.89 g/kg
Diethylene glycol appears to be less toxic to humans than ethylene glycol. The toxic effects on humans are greater than on animals.
Carcinogenicity: Not listed as a carcinogen by ACGIH, IARC, NTP, or CA Prop 65
Epidemiology: No information available.
Teratogenicity: Investigated..
Reproductive Effects: Investigated.
Mutagenicity: No information available.
Neurotoxicity: No information available.
Other Studies: No information available.

12. ECOLOGICAL INFORMATION

Ecotoxicity: No information available.
Environmental Fate: No information available.

13. DISPOSAL CONSIDERATIONS

Material that cannot be saved for recovery or recycling should be managed in an appropriate and approved waste facility. Processing, use or contamination of this product may change the waste management options. Waste generators must decide if discarded material is a hazardous waste. State and local disposal regulations may differ from federal disposal definitions found in 40 CFR 261.3. Dispose of container and unused contents in accordance with federal, state and local requirements.

14. TRANSPORT INFORMATION

Not regulated for transportation.

15. REGULATORY INFORMATION

US Federal Regulations:
TSCA: CAS# 111-46-6 is listed on the TSCA Inventory.
Health and Safety Reporting List: Not listed.
Chemical Test Rules: Not listed.
Section 12b: Not listed.
TSCA Significant New Use Rule: Does not have an SNUR under TSCA.
CERCLA Hazardous Substances: CAS# 111-46-6 does not have a final RQ
SARA Section 302: Does not have a TPQ
SARA Codes: CAS# CAS# 111-46-6 – immediate, delayed
Section 313: Diethylene Glycol (CAS# 111-46-6) is not subject to SARA Title III Section 313 40 CFR 373 reporting requirements.
Clean Air Act: CAS# 111-46-6 is not listed as a hazardous air pollutant (HAP). It is not a Class 1 Ozone Depleter. It is not a Class 2 Ozone Depleter.
Clean Water Act: CAS# 111-46-6 is not listed as a Hazardous Substance. It is not a Priority Pollutant. It is not a Toxic Pollutant.

OSHA: Not considered highly hazardous by OSHA.

US State Regulations:

CAS# 111-46-6 is on the following state right-to-know lists: Pennsylvania and Minnesota

Canada:

DSL/NDSL: CAS# 111-46-6 is listed on Canada's DSL list.

WHMIS: This product has a WHMIS classification of D2A. This product has been classified in accordance with hazard criteria of the Controlled Products Regulations and this MSDS contains all the information required by those regulations.

DSCL (EEC):

Hazard Symbols: Xn

Risk Phrases: R22 – harmful if swallowed; R36 – Irritating to eyes.

Safety Phrases: S45 – if swallowed, seek medical advice immediately (show the label whenever possible)..

WGK (Water Danger/protection): CAS# 111-46-6: 1

16. OTHER INFORMATION

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